

NORTH AMERICAN SPECIES OF THE GENUS *BRACHYPODA* (ACARINA: ATURIDAE: AXONOPSINAE)¹

DAVID R. COOK

Wayne State University, Detroit, Michigan 48202

ABSTRACT—The North American members of the water mite genus *Brachypoda* Piersig are treated and 2 species, *B. fimbriata* and *B. affinis*, are described as new.

Four species of *Brachypoda* Piersig (and an additional subspecies) have been previously described by Herbert Habeeb from North America. These are: *B. cornipes cornipes*, *B. cornipes owascoa*, *B. setosicaudata*, *B. acuticaudata* and *B. oakcreekensis*. The type-material on which these species were based has been privately retained and all recent attempts to borrow the specimens have been unsuccessful. The previous descriptions and illustrations are lacking in critical detail but, with the exception of *cornipes* and its subspecies, the recollection of specimens at or near the type locality has made identification reasonably certain.

Species diagnoses are based primarily on morphology of the male, especially shape of the cauda and structure of the genital field region. Females, with two known exceptions, are so similar that they cannot be identified to species with certainty. Identification of females based on correlation with males present in the collection is useful but is complicated by the fact that more than one species of *Brachypoda* may occur in the same locality, especially in eastern North America.

Two new species are described, the holotypes and allotypes of which will be placed in the Field Museum of Natural History (Chicago).

KEY TO THE NORTH AMERICAN SPECIES OF *BRACHYPODA* (BASED ON MALES ONLY)

1. A long ridge on each side extending far anterolaterally from the second pair of acetabula; posterior end of genital field distinctly set off from the ventral shield (fig. 6) *B. cornipes* (two subspecies) 2
- Either no ridge or only a short ridge on each side extending anterolaterally from the second pair of acetabula; posterior end of genital field grading almost imperceptibly into the sclerotization of the ventral shield (fig. 8, 14, 15) 3
2. Body 685 μ –700 μ in length; longest claw on fourth leg 75 μ –90 μ in length *B. cornipes cornipes* Habeeb
- Body 580 μ –595 μ in length; longest claw on fourth leg 54 μ –60 μ in length *B. cornipes owascoa* Habeeb

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3. Lateral edges of genital field with many long setae, some of which extend beyond the posterior end of the cauda (fig. 14, 19, 20) 4
- Lateral edges of genital field with a few long setae, none of which extend to the posterior end of the cauda (fig. 8, 15) 6
4. A distinct ridge on each side extending between the outer edges of the most medial two pairs of acetabula (fig. 19, 20) 5
- No ridges extending between the outer edges of the most medial two pairs of acetabula *B. setosicaudata* Habeeb
5. Anterior edge of genital field with a continuous row of small setae (fig. 20) *B. fimbriicaudata* Cook, n. sp.
- Anterior edge of genital field with a wide setae-free area (fig. 19) *B. affinis* Cook, n. sp.
6. Cauda decidedly narrowed posteriorly (fig. 15) *B. acuticaudata* Habeeb
- Cauda only slightly narrowed posteriorly (fig. 8) *B. oakcreekensis* Habeeb

Brachypoda (Brachypoda) cornipes Habeeb

Fig. 1-7

Brachypoda cornipes Habeeb, 1956. Leaflets Acadian Biol., 12:1.

Male: Dorsal shield 506μ – 586μ in length, 349μ – 365μ in width; 2 pairs of greatly enlarged glandularia setae present laterally; stippled areas on fig. 3 illustrate dorsal color pattern; ventral shield 532μ – 593μ in length, 365μ – 395μ in width; first coxae projecting slightly beyond body; condyles associated with insertions of first legs apparent in ventral view; transverse ridge present immediately anterior to genital field and ridge present on each side extending far anterolaterally from region of second pair of acetabula; 3 pairs of acetabula, first and second pair located very close together; pair of lobed projections present between second and third acetabula (fig. 6); numerous small setae associated with genital field, those at posterior end bifurcate; width between outer edges of most lateral pair of acetabula 204μ – 229μ .

Dorsal lengths of palpal segments: P-I, 35μ – 38μ ; P-II, 62μ – 66μ ; P-III, 42μ – 45μ ; P-IV, 93μ – 100μ ; P-V, 34μ – 35μ ; projection on ventral side of P-II relatively large; structure of palp similar to that of female (fig. 5) except P-IV bears numerous small setae; dorsal lengths of distal segments of fourth leg: IV-Leg-4, 118μ – 128μ ; IV-Leg-5, 164μ – 186μ ; IV-Leg-6, 150μ – 173μ ; IV-Leg-4 with long projection at distal end, this projection bearing 2 heavy setae at tip; 3 very heavy setae extending ventrally from IV-Leg-4; fig. 2 shows proportions and chaetotaxy of these segments; claws at tip of fourth leg without ventral clawlet; longest claw at tip of IV-Leg-6, 55μ – 76μ in length; II-Leg-6 abruptly expanded at proximal end; III-Leg-6 only slightly longer than III-Leg-5.

Female: Dorsal shield (not including excretory pore platelet) 517μ – 547μ in length, 358μ – 395μ in width; excretory pore platelet 111μ – 118μ in width; fig. 1 illustrates structure and color pattern of dorsal shield; length from anterior end of dorsal shield to posterior end of genital field 525μ – 547μ ; width 410μ – 441μ ; coxae not projecting; condyles associated with insertions of fourth legs may be seen in ventral view (fig. 7); 3 pairs of genital acetabula; width between outer edges of most lateral pair of acetabula 200μ – 207μ .

Dorsal lengths of palpal segments: P-I, 34μ – 35μ ; P-II, 59μ – 64μ ; P-III, 39μ – 42μ ; P-IV, 82μ – 89μ ; P-V, 34μ – 35μ ; projection on ventral side of P-II well de-

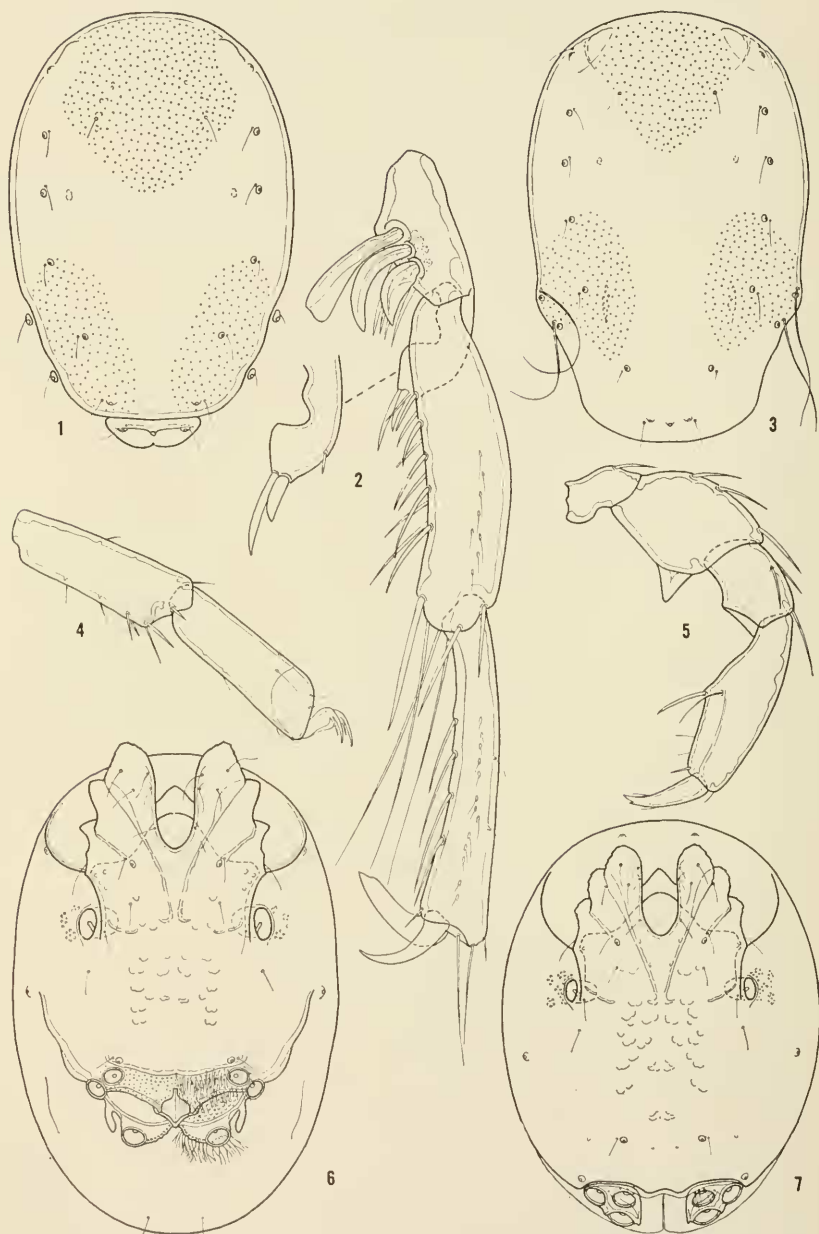


Fig. 1-7, *Brachypoda cornipes*. 1, dorsal shield, female. 2, distal segments of fourth leg, male. 3, dorsal shield, male. 4, I-Leg-5 and 6, female. 5, palp, female. 6, ventral shield, male. 7, ventral shield, female.

veloped; fig. 5 shows proportions and chaetotaxy of palp; dorsal lengths of distal segments of first leg: I-Leg-4, 72μ – 79μ ; I-Leg-5, 80μ – 86μ ; I-Leg-6, 80μ – 86μ ; fig. 4 shows I-Leg-5 and 6.

Material Examined: 9 ♂♂, 3 ♀♀, taken by stirring up bottom gravels in Black River on Road CC (north of Clear Water Reservoir), Reynolds Co., Missouri, June 21, 1967; 1 ♂, 1 ♀, taken in Flatbrook south of Bevens, Sussex Co., New Jersey, Sept. 7, 1968; 1 ♀, taken by stirring up bottom gravels in Thompson Creek near McClung, Bath Co., Virginia, Sept. 9, 1968; 4 ♂♂, from bottom deposits in tributary of Jackson River near Bacova, Bath Co., Virginia, Sept. 9, 1968; 1 ♂, 2 ♀♀, from South Branch of Umpqua River near Milo, Douglas Co., Oregon, Aug. 11, 1961.

Discussion: The original description of *cornipes* is so general as to be nearly useless and it includes only a very diagrammatic drawing of the male fourth leg. Thus, in the absence of type or topotypic material, identification of the present species with *cornipes* should be regarded as tentative. However, there is nothing in the original description and drawing which would suggest they are not conspecific. The type locality is a brook in Victoria Co., New Brunswick. Habeeb (1966) described a subspecies, *cornipes owascoa*, from Dutch Hollow Creek in Cayuga Co., New York, stating the latter was smaller and had much shorter claws on the male fourth leg. Habeeb gives a body length of 685μ – 700μ for the typical subspecies, 580μ – 595μ for *owascoa*. The claws of the fourth leg had a length of 75μ – 90μ in *cornipes cornipes*, and a length of 54μ – 60μ in the subspecies from New York. All material in the present study falls within the size variation expected in *owascoa*. My specimens from Oregon lack the distinctive color pattern found in the eastern representatives (fig. 1, 3) but otherwise seem similar.

Brachypoda (Ocybrachypoda) oakcreekensis Habeeb, new status

Fig. 8–13

Brachypoda acuticaudata oakcreekensis Habeeb, 1961. Leaflets Acadian Biol., 24:2.

Male: Dorsal shield 494μ – 585μ in length, 350μ – 410μ in width; no setae on dorsal shield greatly enlarged; ventral shield 486μ – 592μ in length, 380μ – 441μ in width; first coxae not projecting beyond end of body; condyles associated with insertions of fourth legs not visible in ventral view; indistinct ridge present immediately anterior to genital field; no ridges extending anterolaterally from most lateral pair of acetabula; 3 pairs of genital acetabula; width between outer edges of most lateral pair of acetabula 214μ – 266μ ; typically with 4 pairs of long setae flanking genital field, these not extending to posterior end of body (fig. 8); posterior end of body (cauda) only slightly narrowed laterally; degree of sclerotization of posterolateral edges of ventral shield variable producing slight indentations in cauda in some specimens.

Dorsal lengths of palpal segments: P-I, 32 – 36μ ; P-II, 59μ – 66μ ; P-III, 34μ – 37μ ;

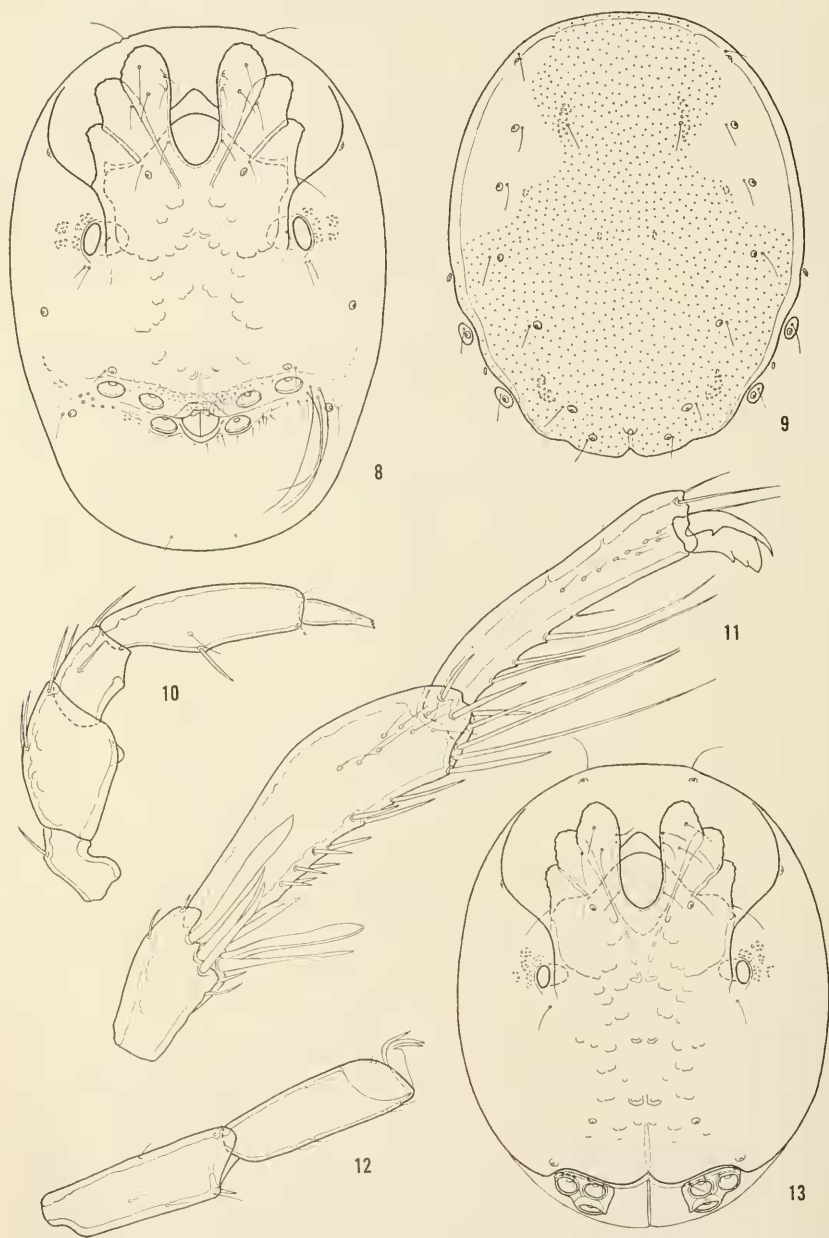


Fig. 8-13, *Brachypoda oakcreekensis*. 8, ventral shield, male. 9, dorsal shield, female. 10, palp, female. 11, distal segments of fourth leg, male. 12, I-Leg-5 and 6, female. 13, ventral shield, female.

P-IV, 84μ – 98μ ; P-V, 31μ – 34μ ; projection on ventral side of P-II moderately developed; structure of palp similar to that shown for female except surface of P-IV bears numerous small setae; capitulum 124μ – 135μ in length, chelicera 118μ – 131μ in length; dorsal lengths of distal segments of fourth leg: IV-Leg-4, 66μ – 83μ ; IV-Leg-5, 159μ – 190μ ; IV-Leg-6, 149μ – 169μ ; most distal of 2 long setae on ventral side of IV-Leg-6 located near middle of segment; fig. 11 shows specialized chaetotaxy of IV-Leg-4; 1 claw of fourth leg with ventral clawlet.

Female: Dorsal shield 502μ – 608μ in length, 395μ – 412μ in width; excretory pore platelet fused with dorsal shield (fig. 9); length from anterior end of ventral shield to posterior end of genital field 517μ – 592μ , width 426μ – 456μ ; coxae not projecting to anterior end of body; condyles associated with insertions of fourth legs not visible in ventral view (fig. 13); 3 pairs of genital acetabula; width between outer edges of most lateral pair of acetabula 211μ – 222μ .

Dorsal lengths of palpal segments: P-I, 35μ – 38μ ; P-II, 62μ – 69μ ; P-III, 35μ – 38μ ; P-IV, 85μ – 96μ ; P-V, 34μ – 36μ ; projection on ventral side of P-II moderately developed; fig. 10 shows proportions and chaetotaxy of palp; capitulum 130μ – 141μ in length, chelicera 128μ – 131μ in length; dorsal lengths of distal segments of first leg: I-Leg-4, 71μ – 76μ ; I-Leg-5, 83μ – 90μ ; I-Leg-6, 76μ – 83μ ; fig. 12 illustrates I-Leg-5 and 6.

Material Examined: 3 ♂♂, 13 ♀♀, taken in Oak Creek in Oak Creek Canyon (type-locality), Coconino Co., Arizona, Oct. 24, 1970; 22 ♂♂, 21 ♀♀, taken in Little Creek on Highway 15 near Gila Cliff Dwellings National Monument, Catron Co., New Mexico, Oct. 21, 1970; 1 ♂, 1 ♀, taken in Moccasin Creek, Tuolumne Co., California, Oct. 26, 1970; 5 ♂♂, 3 ♀♀, from South Fork of Trinity River, Trinity Co., California, July 30, 1966; 1 ♂, 1 ♀ collected in Gibbon River above Virginia Cascades, Yellowstone National Park, Wyoming, Sept. 1, 1961.

Discussion: *Brachypoda oakcreekensis* and all of the remaining species are assigned to the subgenus *Ocybrachypoda*, the latter erected by Cook (1974). This subgenus is predominantly a North American group but the European species *B. celeripes* Viets is also included. The original description of *oakcreekensis* is inadequate and lacking in illustrations. However, there apparently is only one species present in the type locality and identification therefore seems reasonably certain. The most distinctive feature of the present species is the fusion of the excretory pore platelet with the dorsal shield in the female (fig. 9). In females of all other species of *Brachypoda*, this platelet (fig. 21) is separate. The largest measurements given are from the individuals collected in Yellowstone National Park. Specimens from the type locality are nearer the low end of the size range.

Brachypoda (Ocybrachypoda) setosicaudata Habeeb

Fig. 14, 17

Brachypoda setosicaudata Habeeb, 1953. Leaflets Acadian Biol., 1:12.

Male: Dorsal shield 646μ – 714μ in length, 441μ – 458μ in width; no setae of dorsal shield greatly enlarged; ventral shield 638μ – 745μ in length, 456μ – 516μ

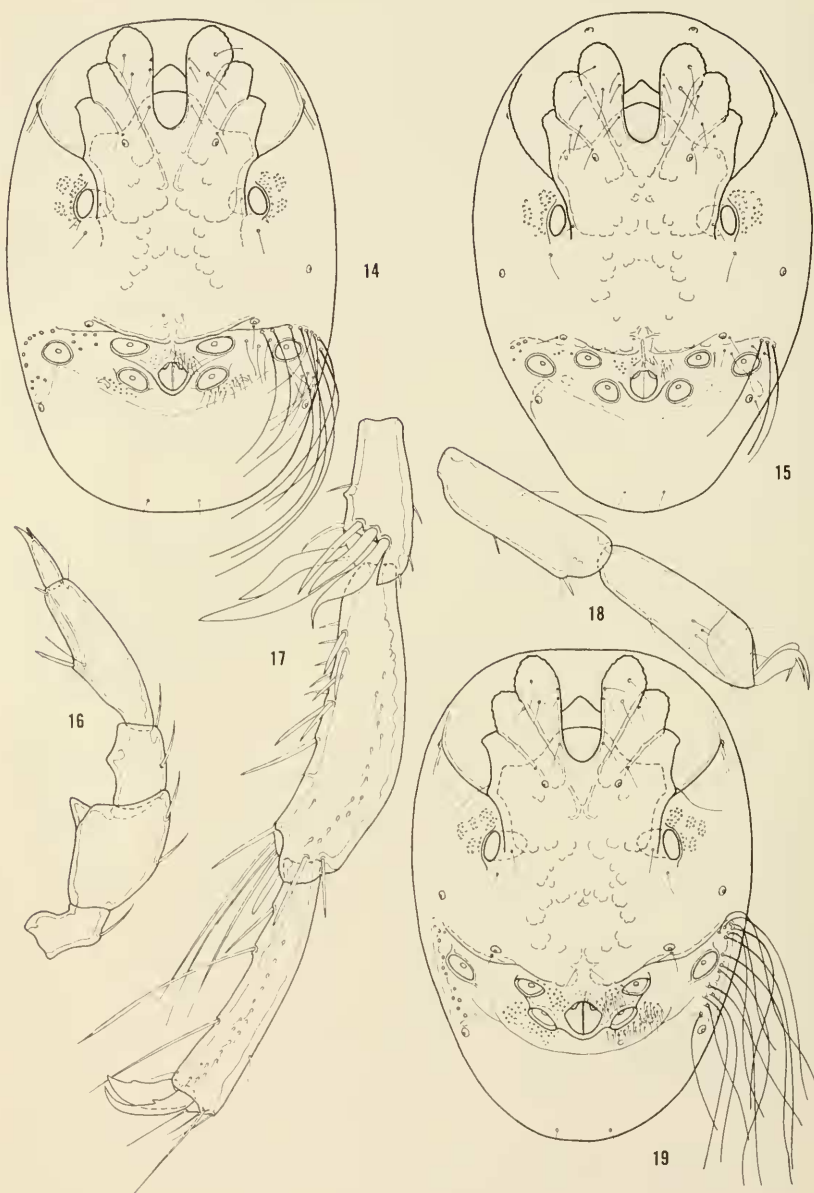


Fig. 14-19, *Brachypoda* spp. 14, *B. setosicaudata*, ventral shield, male. 15, *B. acuticaudata*, ventral shield, male. 16, *B. affinis*, palp, female. 17, *B. setosicaudata*, distal segments of fourth leg, male. 18, *B. affinis*, I-Leg-5 and 6, female. 19, *B. affinis*, ventral shield, male.

in width; first coxae extending nearly to anterior end of body; condyles associated with insertions of fourth legs not visible in ventral view; well developed ridge present immediately anterior to genital field which extends to associated pair of glandularia and indistinct ridge on each side extending to area of most lateral glandularia; 3 pairs of genital acetabula; width between outer edges of most lateral pair of acetabula 348μ – 362μ ; indistinct ridge on each side extending from gonopore to first pair of acetabula; numerous long setae present in lateral portions of genital field, some of which extend well beyond posterior end of cauda (fig. 14); posterior end of body somewhat truncate and only slightly narrowed.

Dorsal lengths of palpal segments: P-I, 38μ – 42μ ; P-II, 69μ – 73μ ; P-III, 44μ – 48μ ; P-IV, 116μ – 126μ ; P-V, 35μ – 38μ ; projection on ventral side of P-II well developed; surface of P-IV with numerous small setae; capitulum 149μ – 156μ in length, chelicera 142μ – 145μ in length; dorsal lengths of distal segments of fourth leg: IV-Leg-4, 97μ – 104μ ; IV-Leg-5, 196μ – 214μ ; IV-Leg-6, 177μ – 189μ ; most distal of 2 long setae on ventral side of IV-Leg-6 located near distal end of segment; fig. 11 shows specialized setae of IV-Leg-4; 1 claw of fourth leg with ventral clawlet.

Female: Dorsal shield (not including the excretory pore platelet) 577μ – 668μ in length, 440μ – 486μ in width; excretory pore platelet free and 126μ – 155μ in width; length from anterior end of ventral shield to posterior end of genital field 608μ – 707μ , width 486μ – 547μ ; coxae not extending to anterior end of body; condyles associated with insertions of fourth legs not visible in ventral view; 3 pairs of genital acetabula; width between outer edges of most lateral pair of acetabula 266μ – 295μ .

Dorsal lengths of palpal segments: P-I, 38μ – 39μ ; P-II, 64μ – 66μ ; P-III, 42μ – 44μ ; P-IV, 97μ – 107μ ; P-V, 33μ – 36μ ; dorsal lengths of distal segments of first leg: I-Leg-4, 80μ – 93μ ; I-Leg-5, 87μ – 100μ ; I-Leg-6, 96μ – 101μ .

Material Examined: 2 ♂♂, 18 ♀♀, collected in Adam's Creek approximately 5 miles east of Mesick, Wexford Co., Michigan, July 13, 1959; 1 ♂, 3 ♀, taken in Miner River immediately above Miner's Falls, Alger Co., Michigan, Aug. 27, 1959; 1 ♂, from Duck Creek 1 mile south of Watersmeet, Gogebie Co., Michigan, Aug. 14, 1960; 1 ♂, 1 ♀, from Jardine Brook 10 miles southwest of St. Quentin, Victoria Co., New Brunswick, Aug. 27, 1964; 2 ♂♂, 1 ♀, taken in headwaters of Grand River, Victoria Co., New Brunswick, Sept. 3, 1968; 1 ♂, from stream in Howard Co., Maryland, Nov. 1952.

Discussion: The long setae flanking the genital field, only slightly narrowed posterior end of the body and lack of distinct ridges extending between the outer edges of the most medial two pairs of acetabula is diagnostic for males of the present species. Females of *setosicaudata* and the following species are very similar and can be distinguished with certainty only by association with the male. As mentioned in the introduction, this association is complicated by the possible occurrence of two or more species of *Brachypoda* in the same area, especially in eastern North America. Measurements are given for the female but the possibility exists that the series contained a mixture of species. The female venter is similar to that shown in fig. 13 but the dorsal shield resembles that illustrated in fig. 21.

Brachypoda (Ocybrachypoda) acuticaudata Habeeb

Fig. 15

Brachypoda setosicaudata acuticaudata Habeeb, 1953. Leaflets Acadian Biol. 1:12.*Brachypoda acuticaudata* Habeeb, 1961. *op. cit.*, 24:2.

Male: Dorsal shield 586μ – 638μ in length, 395μ – 426μ in width; no setae of dorsal shield greatly enlarged; ventral shield 593μ – 662μ in length, 425μ – 471μ in width; first coxae not extending to anterior end of body; condyles associated with insertions of fourth legs not visible in ventral view; moderately developed ridge present immediately anterior to genital field; 3 pairs of genital acetabula, most posterior pair of which are closest to gonopore; width between outer edges of most lateral pair of acetabula 288μ – 314μ ; typically with 3 pairs of long setae present in lateral portion of genital field, but these not extending to posterior end of body (fig. 15); cauda decidedly narrowed posteriorly.

Dorsal lengths of palpal segments: P-I, 35μ – 38μ ; P-II, 61μ – 66μ ; P-III, 39μ – 43μ ; P-IV, 104μ – 111μ ; P-V, 31μ – 34μ ; projection on ventral side of P-II well developed; surface of P-IV with numerous small setae; capitulum 148μ – 155μ in length, chelicera 142μ – 145μ in length; dorsal lengths of distal segments of fourth leg: IV-Leg-4, 80μ – 89μ ; IV-Leg-5, 176μ – 190μ ; IV-Leg-6, 155μ – 161μ ; chaetotaxy of these segments as described and illustrated for preceding species (fig. 17).

Female: Similar to that of *setosicaudata* but averaging somewhat smaller. However, larger individuals of *acuticaudata* are larger than smaller specimens of the former, and therefore a female unassociated with the male cannot always be identified with certainty. Individuals, apparently belonging to the present species, had a dorsal shield length (not including the excretory pore platelet) of 547μ – 608μ .

Material Examined: 1 ♂, 2 ♀, from Little Wapskehegan River east of Plaster Rock, Victoria Co., New Brunswick, Sept. 5, 1968; 1 ♂, collected in stream flowing into St. Froid Lake (near the town of Eagle Lake), Aroostook Co., Maine, Sept. 3, 1968; 12 ♂♂, 5 ♀♀, from Flatbrook south of Bevans, Sussex Co., New Jersey, Sept. 7, 1968.

Discussion: The present species seems most closely related to *B. setosicaudata*. It differs in its narrowed cauda and fewer and shorter setae flanking the genital field (compare fig. 14, 15). The male of *acuticaudata* somewhat resembles the western species, *B. oakcreekensis*, but the latter has a much less narrowed cauda. Females of these latter two species are very distinctive for the excretory pore platelet of *oakcreekensis* is fused with the dorsal shield.

Brachypoda (Ocybrachypoda) fimbriicaudata Cook, new species

Fig. 20–25

Male: Dorsal shield 608μ in length, 395μ in width; no setae of dorsal shield greatly enlarged (fig. 25); ventral shield 616μ in length, 425μ in width; first coxae not extending to anterior end of body; condyles associated with insertions of fourth legs not visible in ventral view; well developed ridge present immediately anterior to genital field; 3 pairs of genital acetabula; width between outer edges of most lateral pair of acetabula 311μ ; short ridge present on each side extending

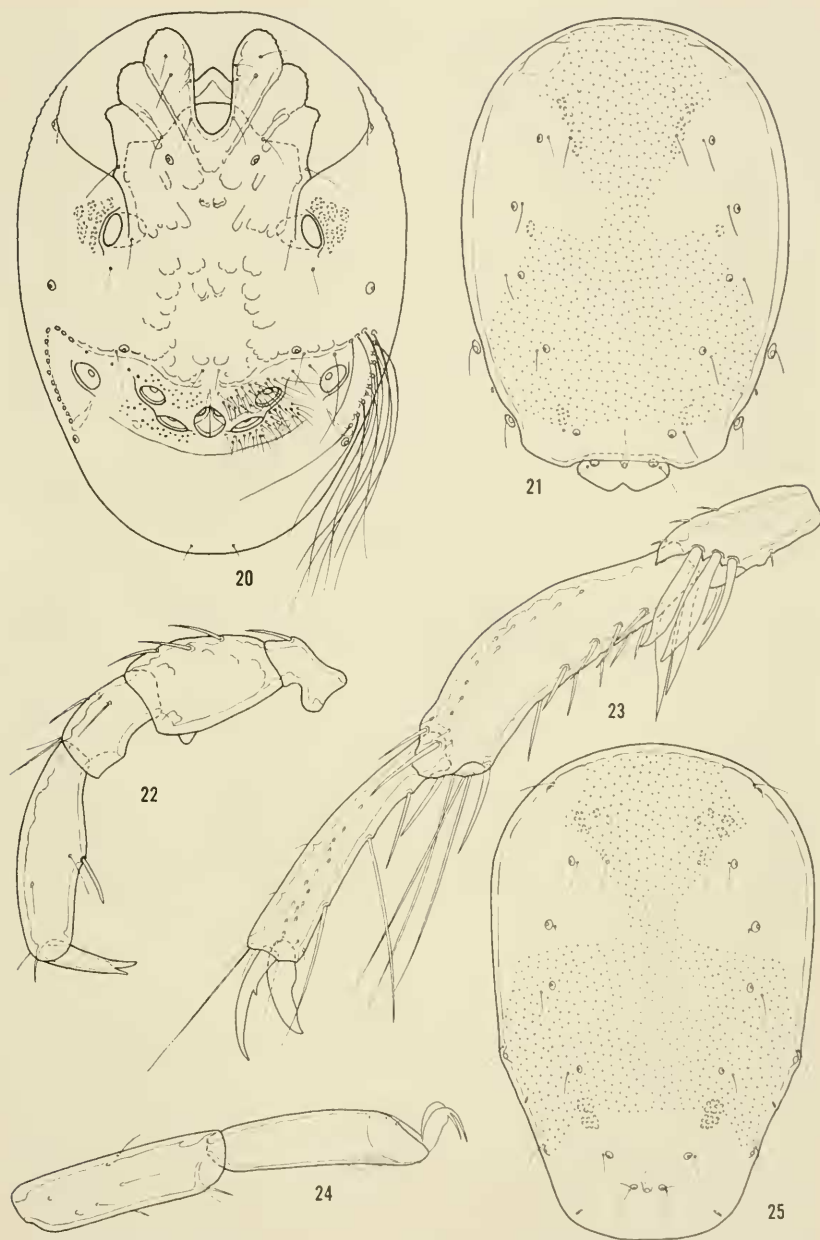


Fig. 20-25, *Brachypoda fimbricaudata*. 20, ventral shield, male. 21, dorsal shield, female. 22, palp, female. 23, distal segments of fourth leg, male. 24, I-Leg-5 and 6, female. 25, dorsal shield, male.

between outer edges of most medial 2 pairs of acetabula (fig. 20); numerous long setae present lateral to genital field, several of which extend well beyond posterior end of cauda; several shorter setae forming continuous row slightly anterior to acetabula; posterior end of body somewhat narrowed.

Dorsal lengths of palpal segments: P-I, 36μ ; P-II, 59μ ; P-III, 39μ ; P-IV, 100μ ; P-V, 33μ ; projection on ventral side of P-II moderately developed; surface of P-IV with numerous small setae; capitulum 136μ in length, chelicera 131μ in length; dorsal lengths of distal segments of fourth leg: IV-Leg-4, 88μ ; IV-Leg-5, 190μ ; IV-Leg-6, 156μ ; most distal of 2 long setae on ventral side of IV-Leg-6 located near distal end; fig. 23 illustrates proportions and chaetotaxy of these segments; 1 claw at tip of fourth leg with ventral clawlet.

Female: Dorsal shield (excluding excretory pore platelet) 623μ in length, 462μ in width; excretory pore platelet free and 126μ in width; length from anterior end of ventral shield to posterior end of genital field 638μ , width 517μ ; coxae not extending to anterior end of body; condyles associated with insertions of fourth legs not visible in ventral view; 3 pairs of genital acetabula; width between outer edges of most lateral pair of acetabula 281μ .

Dorsal lengths of palpal segments: P-I, 38μ ; P-II, 64μ ; P-III, 44μ ; P-IV, 101μ ; P-V, 35μ ; fig. 22 illustrates structure of palp; capitulum 145μ in length, chelicera 131μ in length; dorsal lengths of distal segments of first leg: I-Leg-4, 80μ ; I-Leg-5, 97μ ; I-Leg-6, 93μ ; fig. 24 shows I-Leg-5 and 6.

Holotype: Adult δ , collected from mosses on a rock in a mountain stream at Pine Grove Furnace State Park, Cumberland Co., Pennsylvania, May 21, 1961.

Allotype: Adult η , same data as holotype.

Discussion: The present species is most closely related to the following species (see remarks under the latter). Both differ from all other known species of *Brachypoda* in having a very pronounced ridge on each side extending along the outer edges of the two most medial pair of acetabula in the male (fig. 19, 20). *Brachypoda fimbricaudata* differs from the following species in that the setae of the male genital field extend completely across the area anterior to the acetabula.

Brachypoda (Ocybrachypoda) affinis Cook, new species

Fig. 16, 18, 19

Male: (Measurements of holotype are given first, range of variation of type-series is given in parentheses); dorsal shield 562μ (547μ – 577μ) in length, 380μ (350μ – 380μ) in width; no setae of dorsal shield greatly enlarged; ventral shield 570μ (555μ – 593μ) in length, 414μ (379μ – 414μ) in width; first coxae projecting nearly to anterior end of body; condyles associated with insertions of fourth legs not visible in ventral view; well-developed ridge present immediately anterior to genital field; 3 pairs of genital acetabula; width between outer edges of most lateral pair of acetabula 326μ (296μ – 326μ); short ridge present on each side extending between outer edges of most medial 2 pairs of acetabula; numerous long setae present lateral to genital field, several of which extend well beyond posterior end of cauda; setae-free area extending along anterior edge of genital field (fig. 19); posterior end of body somewhat narrowed.

Dorsal lengths of palpal segments: P-I, 35μ (35μ – 38μ); P-II, 57μ (55μ – 59μ); P-III, 41μ (40μ – 44μ); P-IV, 93μ (92μ – 100μ); P-V, 33μ (31μ – 34μ); projection on ventral side of P-II varying from moderately to well developed; numerous small setae present on surface of P-IV; capitulum 124μ (121μ – 128μ) in length, chelicera 118μ (117μ – 125μ) in length; dorsal lengths of distal segments of fourth leg: IV-Leg-4, 83μ (76μ – 86μ); IV-Leg-5, 180μ (173μ – 183μ); IV-Leg-6, 149μ (144μ – 156μ); structure of these segments similar to those described and illustrated for *B. fimbricaudata* (fig. 23).

Female (?): Dorsal shield (not including excretory pore platelet) 470μ in length, 364μ in width; excretory pore platelet 96μ in width; length from anterior end of ventral shield to posterior end of genital field 502μ , width 425μ ; coxae not extending to anterior end of body; condyles associated with insertions of fourth legs not visible in ventral view; 3 pairs of genital acetabula; width between outer edges of most lateral pair of acetabula 204μ .

Dorsal lengths of palpal segments: P-I, 31μ ; P-II, 52μ ; P-III, 38μ ; P-IV, 78μ ; P-V, 31μ ; fig. 16 illustrates proportions and chaetotaxy of palp; capitulum 118μ in length, chelicera 116μ in length; dorsal lengths of distal segments of first leg: I-Leg-4, 66μ ; I-Leg-5, 73μ ; I-Leg-6, 76μ ; fig. 18 shows I-Leg-5 and 6.

Holotype: Adult ♂, taken by stirring up bottom gravels in Simpson Creek approximately 6 miles east of Cowpasture River, Alleghany Co., Virginia, Sept. 9, 1968.

Paratypes: 5 ♂♂, same data as holotype.

Discussion: The single female specimen is so noticeably smaller than the males that it is not certain they actually are conspecific. However, no other species (based on males) is known from the type locality, and color pattern and structure (other than size) are as would be expected for the female of *affinis*. The present species is most closely related to *B. fimbricaudata*. Males of *affinis* differ in being somewhat smaller and bearing a wide setae-free area at the anterior end of the genital field (compare fig. 19, 20). If the female specimen actually is conspecific, it differs from *fimbricaudata* in proportions of the leg segments (compare fig. 18, 24) as well as in body size.

REFERENCES

- Cook, D. 1974. Water mite genera and subgenera. Mem. Amer. Entomol. Inst., no. 21. 860 p.
Habeeb, H. 1966. New Hydrachnellae from the vicinity of Auburn, New York. Leaflets Acadian Biol., 41:1–8.